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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,434	10/06/2005	Ulrich Steinbrenner	278808US0PCT	8960
22850 7590 03/02/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER DANG, THUAN D	
			ART UNIT 1797	PAPER NUMBER
			NOTIFICATION DATE 03/02/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<i>Office Action Summary</i>	Application No.	Applicant(s)	
	10/552,434	STEINBRENNER ET AL.	
	Examiner	Art Unit	
	THUAN D. DANG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 15, it is unclear how the amounts of olefin fed to stages are controlled so that the same incremental productivity is achieved, based on the respective amount of catalyst. For example,

Claim 22 is recited as a process of preparation of alkylarylsulfonates in the preamble. However, at the end of the claim, it depends on claim 12 which is a process of making alkylaromatic compound.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-14, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Williamson et al (3,207,800) herein “W”.

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W discloses a process of alkylation of aromatic hydrocarbon with an olefin in series of three stir-tank reactors. While the aromatic compound is all fed to the first tank, the total amount of olefins divided into equal portions is fed into each of stages, but more than 40% of the total amount of olefin is fed after the first tank (the figure; col. 3, lines 41-73).

Claims 12-14, 18 and 19 are rejected under 35 U.S.C. 102b) as being anticipated by Lee et al (5,198,595).

Lee discloses a process of alkylation of benzene with an olefin in a series of reaction reactors. the whole of benzene is fed to the first reactor, the olefin amount is serially fed to the first and between each pairs of reaction zones. In examples, Lee shows that 50% of olefin is fed to the inlet of the reactor bed and 50% of olefin is fed at the half of the catalyst bed (the abstract; col. 11, line 59 through col. 12, line 17).

The condition of the reaction can be found on column 12, lines 57-62.

The catalyst is disclosed in the abstract.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 15, 16, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson et al (3,207,800) herein "W".

W discloses a process as discussed above.

W does not disclose (1) controlling the amount of olefin being fed to each stage to achieve the same incremental productivity as called for in claim 15, (2) changing the order of the reactors as called for in 16, (3) operating the process at a temperature in the range from 100 to 250°C as called for in claim 18, and (4) the branching degree of the olefins.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the W process by selecting appropriate amounts of olefin and catalysts for each of stages of the reaction since these factors which affect the product, selectivity, as well as the productivity must be selected to optimize the process.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the W process by changing the order of reactors since it is expected that the separate reactors which are placed in any order in the W process would yield similar results.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the W process by operating the alkylation at a higher temperature such as the claimed temperature would yield similar results.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the W process by using an olefin having a branching degree to arrive at the applicants' claimed process according to the desired alkylate product.

Claims 15, 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (5,198,595).

Lee discloses a process as discussed above.

Lee does not disclose (1) controlling the amount of olefin being fed to each stage to achieve the same incremental productivity as called for in claim 15, (2) changing the order of the reactors as called for in 16, (3) using a stirred tank reactor as called for in claim 17, and (4) the branching degree of the olefins.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by selecting appropriate amounts of olefin and catalysts for each of stages of the reaction since these are factors which affect the product, selectivity, as well as the productivity.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by changing the order of reactors since it is expected that the separate reactors which are placed in any order in the Lee process would yield similar results.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by operating the alkylation in stirred-tank reactors since Lee discloses that a reactor of any configuration can be used (col. 12, lines 31-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee process by using an olefin having a branching degree to arrive at the applicants' claimed process according to the desired alkylate product.

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Williamson (3,207,800) or Lee et al (5,198,595) as applied to claim 12 above, and further in view of Maas et al (WO 02/14266).

Either Lee or W discloses a process as discussed above.

Neither Lee nor W disclose how the olefins are obtained as called for in claims 21 and how the sulfonates are produced as called for in claim 22. However, Maas discloses these (see the abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Lee or W process by using the olefin produced by Maas as the alkylating agent for the alkylation since while W discloses any alkylating agents can be used (col. 2, lines 70-71), it is expected that using any olefin as the alkylating agent in the Lee alkylation would yield similar results.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to THUAN D. DANG whose telephone number is (571)272-1445.

The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/THUAN D DANG/  
Primary Examiner, Art Unit 1797